

What is claimed is:

1. A foreign body retrieval apparatus comprising:

a handle,

an axially elongate member having a foreign body capturing assembly, the elongate member having an inner lumen that is sized and shaped to receive a viewing apparatus;

a substantially tubular member having a distal end and an inner lumen that is sized and shaped to receive the elongate member;

the handle, elongate member and tubular member being operatively associated to move between an open position with the foreign body capturing assembly adapted to receive a foreign body, and a closed position with the foreign body capturing assembly adapted to control a foreign body, and

a sheath having an inner lumen that is sized and shaped to afford sliding passage of the tubular member and the elongate member while in the closed position.

2. A foreign body retrieval apparatus according to claim 1 wherein the sheath is substantially cylindrical with an outer diameter and a length, and the outer diameter and length are sized and shaped to afford transurethral passage of the sheath from the external meatus of the urethra to the bladder of a male patient.

3. A foreign body retrieval apparatus according to claim 1 wherein the foreign body capturing assembly comprises a plurality of tines, each tine having an inclined portion and a foreign body engagement portion, each tine being constructed to be resiliently biased toward the open position, and

the handle and tubular member being arranged so that movement toward the closed position causes the distal end of the tubular member to engage the inclined portions of the tines to cam the tines toward the closed position.

4. A foreign body retrieval apparatus according to claim 3 wherein the foreign body comprises a stent and the foreign body engagement portions comprise hooks at distal ends of the tines situated so that the foreign body capturing assembly is capable of engaging a plurality of spaced regions of the stent substantially simultaneously.

5. A foreign body retrieval apparatus according to claim 4 wherein the stent is a wire stent and each hook includes a concave surface that is sized and shaped to engage a wire of the stent.

6. A foreign body retrieval apparatus according to claim 5 wherein the foreign body capturing assembly comprises three tines projecting about one hundred and twenty degrees relative to each other when viewed in a plane substantially perpendicular to the elongate axis of the elongate member, so that the stent may be grasped and collapsed in a substantially symmetrical fashion.

7. A foreign body retrieval apparatus according to claim 4 wherein the hooks are substantially flat hooks situated at an angle that is substantially perpendicular to the elongate axis of the elongate member.

8. A foreign body retrieval apparatus according to claim 1 wherein the sheath is substantially cylindrical with an outer diameter and the lumen of the sheath is constructed to afford rotation of the elongate member and tubular member about the elongate axis of the elongate member.

9. A foreign body retrieval apparatus according to claim 8 wherein the foreign body capturing assembly comprises a plurality of tines, each tine

having an inclined portion and a foreign body engagement portion, each tine being constructed to be resiliently biased toward the open position, and

the handle and tubular member being arranged so that movement toward the closed position causes the distal end of the tubular member to engage the inclined portion of the tines to cam the tines toward the closed position, and

in the open position, at least a portion of the tines and the foreign body engagement portions project radially beyond the outer diameter of the sheath.

10. A foreign body retrieval apparatus according to claim 9 wherein the foreign body comprises an *in vivo* wire stent having a radius,

the foreign body engagement portion comprises hooks having concave portions sized and shaped to engage a wire of the stent, and

movement toward the closed position while the hooks are engaged with the wires of the stent causes the stent to collapse radially so that relative axial movement between i) the tubular member, elongate member and engaged stent, and ii) the sheath results in removal of substantially all of the stent from the body.

11. A foreign body retrieval apparatus according to claim 1 further comprising a tissue expander to reduce the change that tissue may block removal of the foreign body.

12. A foreign body retrieval apparatus according to claim 1 further comprising a viewing apparatus stabilizer.

13. A foreign body retrieval apparatus according to claim 1 wherein the handle comprises a thumb ring and a finger ring movable between adjacent

and remote positions, the thumb ring assembled to be substantially stationary relative to the axially elongate member,

the finger ring being operatively associated with the tubular member so that movement of the finger member relative to the thumb ring from the remote toward the adjacent position moves the tubular member distally in a direction substantially parallel to the axis of the elongate member.

14. A foreign body retrieval apparatus according to claim 1 wherein the foreign body capturing assembly comprises at least three arms having distal ends, and

wherein in the closed position, the distal ends of the arms are substantially adjacent each other so that a foreign body may be captured by the arms and removed from the body through the sheath.

15. A method of removing an *in vivo* stent comprising the steps of:

providing an assembly comprising a handle, and an axially elongate member having a stent capturing member,

receiving at least a portion of the elongate member within a substantially tubular member,

inserting a viewing apparatus into an inner lumen of the elongate member;

receiving a portion of the tubular member within a sheath having a distal end;

inserting the sheath into a tubular passage of a patient,

viewing the *in vivo* stent;

moving the stent capturing member toward an open position with the handle,

engaging the stent with the stent capturing member,

then moving the stent capturing member toward a closed position, and

causing relative axially movement between i) the tubular member and elongate member with the engaged stent, and ii) distal end of the sheath to slide the stent from the patient.

16. A method according to claim 15 wherein the stent comprises a wire stent within a urethra of a patient, and

the step of causing relative axially movement between i) the tubular member and elongate member with the engaged stent, and ii) distal end of the sheath removes substantially all of the stent from the patient at once.

17. A method according to claim 15 wherein the stent comprises a wire stent within the prostate of a male patient, and the step of inserting the sheath into a tubular passage of a patient includes the step of inserting the sheath from the external urethral meatus to a prostate region of a patient.

18. A method according to claim 15 wherein the stent comprises a wire stent,

the stent capturing member comprises hooks having concave portions that are sized and shaped to receive a wire of the stent,

and the step of engaging the stent with the stent capturing member comprises the step of rotating the elongate member and tubular member about the axis of the elongate member while in the open position.

19. A method according to claim 15 wherein the step of causing relative axially movement between i) the tubular member and elongate member with the engaged stent, and ii) distal end of the sheath to slide the stent from the patient includes the step of:

applying traction to the tubular member and elongate member with the engaged stent and sliding the sheath distally relative to the handle.

20. A method according to claim 15 further including the step of resecting ingrown tissue away from the in vivo stent.